**Motivation**

Micronutrient deficiencies have a major impact on global health

- Vitamin A and zinc deficiencies are a major cause of mortality and morbidity in the developing world.
- Micronutrient deficiencies affect 75% of US adults and are responsible for a multitude of health conditions including anemia, rickets, scurvy, and cancer.

Asymptomatic deficiencies often go undetected

- Conditions tend to have long term health impacts but result in few acute symptoms.

Need for personalized and quantifiable feedback

- Direct relation with supplementation varies from person to person.
- If micronutrient deficiencies are caught early and monitored, treatment with supplementation is relatively straightforward

**Technology**

**Hardware device**

**Test strip**

**Smartphone app**

**Micronutrient monitoring**

**Vitamin B₁₂**

**C-Reactive protein**

**Vitamin D**

**Ferritin**

**Human trials**

**Oncescu et al.** “Smartphone based health accessory for colorimetric detection of biomarkers in sweat and saliva” (2013) Lab on a Chip

**Oncescu et al.** “Cholesterol testing on a smartphone” (2013) Lab on a Chip

**Lee et al.** “NutriPhone: a mobile platform for low-cost point-of-care quantification of vitamin B12 concentrations” (Under review)